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ABSTRACT

Seven checklists were developed to provide precise feedback to students on their teaching performance during secondary science methods microteaching sessions. These checklists measure performance related to: (1) lesson plans; (2) communications skills; (3) generic teaching; (4) concept demonstration; (5) manipulative skills; (6) pre-/post-laboratory discussions; and (7) recitation sessions. The instruments and microteaching are part of a six-step learning process used with each instructional strategy in the methods course. These steps include: examining resource materials or attending lectures related to the strategy; observing former student's microteaching session or having strategy modelled by the instructor; preparing the lesson; teaching the lesson; evaluating the lesson using one or more of the checklists; and revising and re-presenting the lesson. (JN)

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# SEVEN SCIENCE TEACHER PERFORMANCE CHECKLISTS FOR USE IN MICROTEACHES

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The use of microteaches in teacher training, to help preservice and inservice teachers develop and refine instructional skills and as a mechanism for performance evaluation, is well documented. The authors make extensive use of microteaches in secondary science methods to help students master a number of commonly used instructional strategies. Performance checklists are used with the microteaches to provide precise feedback to students on their teaching performances.

On the following pages are seven performance checklists used by the authors in secondary science methods during microteaches. They are the:

Lesson Plan Performance Checklist (page 2)

Communications Skills Performance Checklist (page 3)

Generic Teaching Performance Checklist (page 4)

Concept Demonstration Performance Checklist (page 5)

Manipulative Skill Demonstration Performance Checklist (page 6)

Pre-/Postlab Performance Checklist (page 7)

Recitation Performance Checklist (page 8)

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Lesson Plan
Performance Checklist

Teacher's Name_____
Date_____

Code: 0=None 2=Fair 4=Excellent *=Non-credit Score=___
1=Poor 3=Good N/A=Not Applicable 24x4=96

I. Lesson Plan Heading includes:

__*_a) (Teacher's name)
__*_b) "Course" title
__*_c) "Topic" of lesson
____d) Well-formed performance "Objectives" for prior, this, and next lessons
____e) Textual and/or outside "References"
____f) List of "Needed materials"
__*_g) Approximate lesson "Duration"

II. Lesson Plan Body includes:

__*_a) "Lesson Opening" heading, under which are notes on. . .

____1) device used to capture students' attention
____2) communication of performance objective(s) to students
____3) lesson's objective's practical relevance
____4) lesson's relation to past and/or future lesson(s)

__*_b) "Lesson Body" heading, under which are notes. . .

____1) which are relevant to the performance objective(s)
____2) which are appropriately sequenced
____3) with major questions highlighted
____4) with references to AV aid to be used
____5) with appropriate and/or practical examples
____6) with mechanisms which show where emphasis is to be placed
____7) which fully develops each concept
____8) which develops the lesson's practical relevance

__*_c) "Lesson Ending" heading, under which are notes

____1) containing a reference to lesson ending
____2) for a lesson summary
____3) on assessment of students against performance objective(s)
____4) on lesson's relation to past and/or future lesson(s)
____5) with reference to any assignment and/or announcement

III. Overall, the lesson plan. . .

____a) validly develops the selected instructional strategy
____b) includes a COMPLETE outline of the lesson
____c) is formatted such that it is easy to follow
____d) contains teacher's actual notes; it IS NOT written in narrative form

Communications Skills
Performance Checklist

Teacher's Name _____
Date _____

Code: 0=None 1=Poor 2=Fair 3=Good 4=Excellent N/A=Not Applicable *=Non-Credit Score= ___/30x4=120

I. Simple Verbal Behaviors:

The teacher displayed. . .
____a) control of slang and jargon
____b) clear enuciation
____c) smoothness of verbal delivery
____d) use of clear and simple English
____e) use of transitional phrases/sentences
____f) good volume and tone
____g) use of voice inflection

II. Non-Verbal Behaviors:

The teacher displayed. . .
____a) enhancing body position and motion
____b) a high degree of eye contact with students
____c) appropriate dress/appearance
____d) enhancing facial expressions
____e) enhancing hand gestures

III. Composite Behaviors:

The teacher displayed. . .
____a) an awareness of student's needs
____b) a high degree of enthusiasm
____c) confidence, poise
____d) rapport with students
____e) responsiveness to student needs/questions
____f) an understanding of lesson material
____g) supportive use of instructional aids
____h) non-distractive use of notes
____i) good use of time

IV. Question Asking Behaviors:

The teacher
____a) asked clear questions
____b) asked questions before calling on students
____c) used wait-time #1 (between question and student response)
____d) used wait-time #2 (between student response and any teacher reaction)
____e) reacted appropriately to student responses
____f) ordered questions in an appropriate sequence
____g) distributed questions across class
____h) used probing questions where appropriate
____i) used an appropriate % of high and low order questions

Generic Teaching Performance Checklist

Teacher's Name_____

Date_____

Code: 0=None 1=Poor 2=Fair 3=Good 4=Excellent N/A=Not Applicable *=Non-Credit Score= 18x4=72

I. Lesson Opening:

The teacher. . .

____a) captured students' attention
____b) stated well-formed lesson performance objective(s)
____c) facilitated discussion of objective(s) lesson practical relevance
____d) noted lesson's relation to past and/or future lesson(s)

II. Lesson Body:

The teacher. . .

____a) taught to lesson objective(s)
____b) sequentially developed lesson segments
____c) fully developed each lesson segment and lesson
____d) developed the practical relevance of the lesson
____e) kept students involved in lesson
____f) had all instructional materials ready
____g) emphasized important points
____h) devoted majority of lesson time to this segment

III. Lesson Ending:

The teacher. . .

____a) noted lesson closure to students
____b) summarized the lesson
____c) assessed students against objective(s) taught to
____d) tied lesson to past and/or future lesson(s)
____e) made relevant and clear homework assignment and/or announcement
____f) allowed sufficient time for lesson ending

Concept Demonstration (Inductive) Performance Checklist

Teacher's Name_____
Date_____

Code: 0=None 1=Poor 2=Fair 3=Good 4=Excellent N/A=Not Applicable *=Non-Credit

Score= 21x4=84

I. Lesson Opening:

The teacher. . .

____a) captured students' attention
____b) eluded to the lesson's performance objective(s) without giving away the concept
____c) noted lesson's relation to past and/or future lesson(s)

II. Lesson Body:

The teacher. . .

____a) set the stage for the demonstration
____b) had all materials and equipment ready for use
____c) set up the demonstration where it could be easily viewed by the students (or visa versa)
____d) performed the demonstration with ease
____e) performed the demonstration such that exemplar characteristics of the concepts were emphasized
____f) used questions to help students develop an understanding of the concept
____g) used visual aids where appropriate to support the demonstration
____h) encourages students to make statements which defined and/or explained the concept
____i) defined terms or gave background information only when necessary
____j) developed the practical relevance of the concept
____k) maintained an inductive organization to the lesson

III. Lesson Ending:

The teacher. . .

____a) noted lesson closure to students
____b) summarized the lesson
____c) assessed students' comprehension of the concept
____d) assessed students' ability to apply the concept in new situations
____e) tied lesson to past and/or future lesson(s)
____f) made relevant homework assignment and/or announcement
____g) allowed sufficient time for lesson ending

Manipulative Skill Demonstration Performance Checklist

Teacher's Name_____
Date_____

Code: 0=None 1=Poor 2=Fair 3=Good 4=Excellent N/A=Not Applicable *=Non-Credit

Score= 23x4=92

I. Lesson Opening:

The teacher. . .

____a) captures students' attention
____b) stated well-formed lesson psychomotor (and cognitive) performance objective(s)
____c) facilitated discussion of skill's significance, and/or noted lesson's relation to past and/or future lesson(s)

II. Lesson Body:

The teacher. . .

____a) selected a significant skill to demonstrate
____b) had all materials and equipment ready for use
____c) set up the demonstration where it could be easily viewed by the students (or visa versa)
____d) established a realistic setting for the demonstration
____e) performed the demonstration with ease
____f) used standard/procedures
____g) performed the steps of the demonstration in the proper sequence
____h) performed the demonstration such that each step and/or procedure is evident
____i) developed a rationale for each step/procedure
____j) performed the demonstration such that the skill is seen as a whole
____k) emphasized safety considerations where appropriate
____l) used questions to help students develop a rationale for each step/procedure
____m) used visual aids where appropriate to support the demonstration
____n) prepared time-consuming aspects ahead

III. Lesson Ending:

The teacher. . .

____a) noted lesson closure to students
____b) summarized the lesson
____c) assessed students' comprehension of the concept
____d) tied lesson to past and/or future lesson(s)
____e) provided an opportunity for students to practice and/or apply the skill
____f) made clear homework assignment and/or announcement

Pre-/Postlab (Experimental) Performance Checklist

Teacher's Name_____
Date _____

Code: 0=None 1=Poor 2=Fair 3=Good 4=Excellent N/A=Not Applicable *=Non-Credit

Score= 23x4=92

I. Prelab:

The teacher. . .

____a) captured the students' attention
____b) stated well-formed lesson performance objective(s)
____c) introduced lab/problem
____d) noted lab's/problem's relation to past and/or future lesson(s)
____e) formally stated problem as research question
____f) facilitated discussion of problem's significance
____g) facilitated student identification and naming of variables, e.g., independent, extraneous
____h) facilitated development of operational definitions of the variables
____i) facilitated student generation of hypotheses with rationales
____j) facilitated selection of the hypotheses to be tested
____k) reviewed procedures as necessary
____l) noted safety reminders
____m) organized students and directed them to lab

II. Postlab:

The teacher. . .

____a) captured students' attention
____b) facilitated review of problem, research questions and hypotheses by students
____c) facilitated review of data/sample data by students
____d) questioned students to draw details/relationship(s) out of the data
____e) facilitated students drawing conclusion(s)
____f) facilitated students testing of hypothesis
____g) facilitated students development of inferences
____h) facilitated students relating findings to past and/or future lessons
____i) facilitated students relating findings to practical problems
____j) facilitated students evaluation of lab activity
____k) made relevant and clear homework assignment and/or announcement

Recitation
Performance Checklist

Teacher's Name_____
Date_____

Code: 0=None 1=Poor 2=Fair 3=Good 4=Excellent N/A=Not Applicable *=Non-Credit

Score= 17x4=68

I. Lesson Opening:

The teacher. . .
____a) captured students' attention
____b) stated the recitation's purpose
____c) clearly delineated the topic(s) to be covered
____d) set rules for student participation

II. Lesson Body:

The teacher. . .
____a) had questions prepared and at-hand
____b) asked questions relevant to delineated topic(s)
____c) demonstrated "good" question asking behaviors/skills
____d) facilitated transition between questions
____e) kept lesson moving at a reasonable pace
____f) kept all students involved without threatening them with the questions (e.g., "It will be on the test.")
____g) gave answers only as a last resort
____h) repeated and clarified students' answers when necessary
____i) emphasized important points
____j) kept order

III. Lesson Ending:

The teacher. . .
____a) noted end of recitation
____b) summarized
____c) tied recitation to past and/or future lesson(s)

As secondary science methods is taught by the authors, the microteaches and performance checklists are part of a six step learning process used with each instructional strategy dealt with in the course. First, students study resource materials and/or attend a lecture-discussion(s) on the strategy. The characteristics of the strategy, and appropriate and inappropriate applications of the strategy are covered in the resource materials and lecture-discussion(s). Secondly, the strategy is modelled by the instructor or by showing a videotape of a former student's microteach. The appropriate performance checklist(s) is introduced and discussed at this time. Thirdly, each student prepares a science lesson plan in which the strategy is applied. The lesson plan is for a lesson from 15 to 30 minutes in length (the length increases over the semester). Fourthly, the student presents the lesson to his/her peers ("peer-microteach"). The peer-microteach is videotaped for later review by the student and/or instructor. Fifthly, the lesson plan and lesson presentation is critiqued (formatively evaluated) by an instructor using the performance checklist(s) and discussed with the student. The videotape is reviewed by the student and/or the instructor as necessary during this process. Finally, the student revises his/her lesson plan and re-presents the lesson. The performance checklist(s) is used to summatively evaluate this "reteach."

As was implied above, the authors frequently use more than one performance checklist per microteach (e.g., the lesson plan, communications skills and generic teaching performance checklists). The exact combination of checklists which is used depends on the instructional strategy under study. In completing the checklists, a coded assessment is placed in the blank which precedes each behavior.

Detailed comments may be added next to the behavior or on the reverse side of the checklist (double or triple spacing the checklist provides more room for comments on the front).

The seven checklists originated from a single performance checklist developed by the first author during the mid-1970's. That checklist included behaviors associated with the three major lesson segments and communications skills. Since that time the single checklist has evolved into a number of specialized checklists via a process which is best described by the terms "use, analysis and revision." A number of ideas presented in checklists developed by Hamilton et al. (1977) and Gavette (1979) were incorporated into the checklists during the revisions.

These seven checklists, used by the authors in secondary science methods during microteaches, are provided here to disseminate them to science educators, and to secure feedback from those who would choose to use them.

## References

Gavette, J.O. The effects of tune/focus versus traditional forms of video replay on the teaching performance of elementary mathematics methods students. Unpublished doctoral dissertation, Southern Illinois University, Carbondale, 1979.

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